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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/742,128	12/19/2003	Ankur P. Panchbudhe	VRT0117US	5026
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CSA LLP 4807 SPICEWOOD SPRINGS RD. BLDG. 4, SUITE 201 AUSTIN, TX 78759			DOAN, DUC T	
			ART UNIT	PAPER NUMBER
			2188	

DATE MAILED: 05/12/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/742,128

Applicant(s)

PANCHBUDHE ET AL.

Examiner

Duc T. Doan

Art Unit

2188

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 27,29-42,44-46,48-50,52-54 and 58-61 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 27,29-42,44-46,48-50,52-54,58-61 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Status of Claims

Claims 27,29-42,44-46,48-50,52-54,58-61 have been presented for examination in this application. In response to the last Office Action, The specification has been amended. As a result, claims 27,29-42,44-46,48-50,52-54,58-61 are now pending in this application.

Claims 27,29-42,44-46,48-50,52-54,58-61 are rejected.

Applicant's arguments filed 4/28/06 have been fully considered but they are not persuasive. Therefore, the rejections from the previous office action are respectfully maintained and restated below,

Claim Objections

Claims 1 and 24 are objected to because of the following informalities: full names of abbreviated signals (CA) should be used for the initial recitation in the claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 27,29-42,44-46,48-50,52-54,58-61 rejected under 35 U.S.C. 103(a) as being unpatentable over Krishnamurthy (US 6823436) and further in view of Miyata (US Pub 2003/0225972).

As for claim 27, Krishnamurthy describes a method comprising: in response to a request to perform an operation on a first set of locations of a plurality of location in a storage area, (Krishnamurthy's Fig 3: #36, extends of data from the source drive for snapshot copy operations; column 4 lines 30-60), comparing at least one location of the first set of locations to at least one location description, wherein the at least one location description has a corresponding property describing a type of operation; and (Krishnamurthy's column 4 lines 30-60 describe extends of the data of the source drive are chosen to be copied over); and performing the operation (snapshot data) upon a given location in the first set of locations of the plurality of locations in the storage area only if the given location is described in the at least one location described upon a third set of locations in the storage area (Krishnamurthy's Fig 3: #36, snapshot data to target drive in units of segments; column 4, lines 1-13). Krishnamurthy does not explicitly describe the claim's detail of a description structure. However, Miyata describes a file system management comprising metadata structures for directories, data files and data blocks (Miyata's Fig 4: #402). The metadata structure has attribute fields to describes property of the corresponding data blocks. The attributes describe the type of operations for the corresponding data blocks such as duplicate operation (Miyata's Fig 2, paragraphs 50-56; Fig 11, paragraphs 87-91). It would have been obvious to one of ordinary skill in the art at the time of invention to

include system management modules and metadata structures as suggested by Miyata in Krishnamurthy's system to allowing users specifying the operations for the corresponding data regions (Miyata's Fig 13, paragraph 95) and thereby the storage unit itself automatically duplicates the data stored in the storage unit into a separate medium in a high-speed manner (Miyata's paragraphs 6-8).

As for claim 29, Miyata describes wherein the at least one location description is specified by an application program (Miyata's paragraphs 96-99 describes API and methods for user to specifying the areas to be duplicated).

As for claim 30, Krishnamurthy describes wherein the operation is replication (Krishnamurthy's column 3, lines 18-21).

As for claim 31, Krishnamurthy describes obtaining a set of entities, wherein the first set of locations comprises a plurality of subsets of locations (data blocks in an extent), and an entity (an extent) in the set of entities has permission to perform the operation on respective data in at least one of the plurality of subsets of locations [Krishnamurthy's column 4, lines 43-49; Krishnamurthy's column 5, lines 26-33].

As for claim 32, Krishnamurthy describes wherein the at least one location description and the corresponding property describing the type of the operation are designated by a requester (Miyata's paragraphs 96-99 describes API and methods for user to specifying the areas to be duplicated).

As for claim 33, Miyata describes obtaining a designation of the operation to be performed; wherein the requester manages data in the storage area (claim 34, Miyata's paragraph

96); wherein the requester performs a management function of a set of management functions for the storage area (claim 35, Miayta's paragraph 95)

As for claims 36, Miayta describes wherein the requester identifies a respective physical location described in the at least one location description (Miayta's paragraphs 96,98)

As for claim 37, Krishnamurthy describes wherein each location in the second set of locations is specified by a beginning location and a number of contiguous locations starting at the beginning location [Krishnamurthy's column 6, lines 1-3, lines 30-39].

As for claim 38, Miayta describes wherein the at least one location description is designated by a set of indicators, wherein the set of indicators comprises an indicator for each respective location of the plurality of locations Miayta's Fig 4, Fig 2, paragraphs 50-52 describes each attribute bit associated with its corresponding storage location such as a data block), and each indicator of the set of indicators indicates whether the respective location for the indicator is described in the at least location description (Miayta's Fig 4, Fig 2, paragraphs 50-52 describes each attribute bit describing the corresponding operation such as duplication for the corresponding data block).

As for claim 39, Miayta describes obtaining a second set of locations location of a second duplicate operation (Fig 4a: offset 728, extent 472); and performing a second operation (duplicating operation) on the second set of locations after the operation (upstaging data to cache) is performed on the given location (Miayta's Fig 4, Fig 2, paragraphs 50-52 describes each attribute bit describing the corresponding operation such as duplication and cache residence for the corresponding data block);

As for claim 40, Miyata describes wherein the at least one location description and the corresponding property describing the type of the operation are designated by the requester; and the operation and the second operation are designated by the requester (Miyata's paragraphs 67,98 describes that requester provides the attribute information and the corresponding storage locations).

As for claim 41, Miyata describes wherein a sieve for the storage area comprises the at least one location description and the corresponding property describing the type of operation, and each type of operation in the sieve is performed on the given locations if the sieve is specified (Miyata describes the file system with meta data attributes in which the attributes can be turned on or off to specify an operation such as duplicate for the corresponding data block. Each attribute specifies different operations such as cache residence, duplication (Miata's Fig 2).

As for claim 42, it rejected based on the same rationale as in claim 27.

As for claims 43,51 they rejected based on the same rationale as in claim 28.

As for claims 44,48,52 they rejected based on the same rationale as in claim 40.

As for claims 45,53 they rejected based on the same rationale as in claim 33.

As for claim 46, it rejected based on the same rationale as in claim 27.

As for claim 47, it rejected based on the same rationale as in claim 28.

As for claim 49, it rejected based on the same rationale as in claim 33.

As for claim 50, it rejected based on the same rationale as in claim 27. Krishnamurthy further describe the computer readable medium in column 3, lines 30-45.

As for claim 54, it rejected based on the same rationale as in claim 50.

As for claim 58 comparing information about the operation with the corresponding property describing the type of operation (Miyata's Fig 9: # 1401, 1402 describes comparing the request with the attributes in the file).

As for claims 59-61, they are rejected based on the same rationale as in the rejection of claim 58.

Response to Arguments

Applicant's arguments in response to the last office action has been fully considered but they are not persuasive. Examiner respectfully traverses Applicant's arguments for the following reasons:

As to the remarks on pages 2-3 concerning the claim 27,

Examiner notes that the word comparing is not found in the specification anywhere. Applicant is required to show the support in the specification for his argument (which paragraphs, lines in the specification that correspond to the claim limitations and support facts in the specification for his argument).

A) Applicant argues that Krishnamurthy does not teach the comparing and performing step of claim 27. Examiner respectfully disagrees.

The limitation is recited as "comparing at least one location of the first set of locations to at least one location description". Examiner notes that the word comparing is not found in the specification anywhere. Application is required to show the support in the specification for his argument (which paragraphs, lines in the specification that corresponds to the claim limitation). Examiner notices that in the paragraphs 52 and 53, there is a description of a replication

operation that copies data from the source volume #2 presumably to a destination. The operation uses a meta data information (sieve) corresponding to the data to be duplicated, applying the location information in the sieve to data location in volume #2 and subsequently replicating the data based on the information in the sieve. Thus Examiner presumes/and interprets that the act of using the meta data information to determine the range of source data for duplication operation would implicitly comprises comparing operation recited in the claim.

Krishnamurthy's column 5 lines 25-32 in a similar manner, describes copy operations from a source volume to a target volume. The copy operation of a set of data (for example copying operation for an extent of data in the source volume) includes determining the locations of data blocks to be copied by matching with the offset or start request address and the extent length information in the meta data structure (Fig 4A: #N1). This act corresponds to the "comparing at least one location of the first set of locations to at least one location description" as recited in the claim. If data is matched in the meta data structure (Fig 4A: #N1), the copy operation will occur. Krishnamurthy's column 4 lines 40-41 shows as an example, at certain time, extents at offsets 0, 728, 3048 are copied over to the destination. Eventually, for subsequently copy operations on the remaining offsets and data blocks in the source volume will be requested and executed in order. There is no such limitation on three extents as Applicants' asserting.

Therefore Krishnamurthy teaches the comparing acts as recited in the claim limitation.

B) Krishnamurthy does not explicitly describe the meta data structure that comprises other information such as a type of operation information as in the claim. However, Miyata teaches a file system with metadata structures (file attributes, Fig 4: #402) associating with

blocks of data in the file system. The attributes are used to define multiple information associating with the corresponding data blocks. For example, the attributes have information such as to instruct a duplicate operation on data blocks in a file (see Miyata's paragraph 85). The attributes have information for other characteristics associating with data blocks in a file such as File or directory types (paragraph 57), whether the file stay resident in cache or not (paragraph 60). Therefore, Miyata clearly describes the attributes having information that not only defining the operation but also defining types and other characteristics associating with the data in the file and for the corresponding operation.

C) Applicant argues that "using the cache allows a file to be executed at high speed, but does not teach that .. metadata structures improves operation speed". Examiner respectfully disagrees. It has been known that in a duplicating or copying operation, the source data blocks may be resided in a disk or in a cache. If data resided in the disk, the data is then staged up to cache before executing the instruction/operation such as duplicating (Miata's paragraph 46). By providing further information in the meta data structure such as source data being resident in a cache, the duplication operation can access/use/"reference" the source data in the cache much faster than access the data in the disk (Miata's paragraph 5). Thus the information in the meta data structure directly helps to speed up the duplication operation. One of ordinary skill in the art would employ metadata structures as taught by Miyata into Krishnamurthy, thereby to improve the executing speed of the duplication operation.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

When responding to the office action, Applicant is advised to provide the examiner with the line numbers and page numbers in the application and/or references cited to assist examiner to locate the appropriate paragraphs.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Duc T. Doan whose telephone number is 571-272-4171. The examiner can normally be reached on M-F 8:00 AM 05:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mano Padmanabhan can be reached on 571-272-4210. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Mano Padmanabhan
5/11/06

**MANO PADMANABHAN
SUPERVISORY PATENT EXAMINER**